

Accelerator Systems Division Highlights Ending October 21, 2005

Installation

Craft Snapshot 10/18/05

ASD productive craft workers	34.0
Foremen (Pd by 15% OH)	5.0
HSM management (Pd directly)	3.0
TOTAL AMSI WORKERS	42.0
Less WBS 1.9, 1.2 etc	1.0
Less absent	0.0
TOTAL PD BY ASD/ORNL DB WPs	33.0

Accelerator Physics

- A prototype nanocrystalline diamond stripper foil for the Ring was successfully tested for the second time in the LANSCE Proton Storage Ring on 15/Oct. The last test on 18/Sep was limited to 10 uA and 5 uC/pulse. This time the foil was tested at full PSR production intensity of 100 uA. The single-pulse intensity was also raised to 7 uC at 4 Hz. At the higher intensity the number of foil traversals per macropulse was 6 to 8 times higher than we expect during SNS production conditions, so this was a very demanding test. We hope to continue the foil test by using it for routine PSR production in the coming weeks.

Operations

- Interviewed a Chief Operator candidate
- Mario is away at BNL as a member of an external SBMS Review Team
- Prepared operating EPICS screens for HEBT-Ring commissioning
- Prepared for RF processing CM 23
- Closing out ARR post-start Action Items
- Began the process of signed-off test plans for equipment prior to turn-over for Ring commissioning
- Interacting with XFD on Test plans for the ARR, RID
- Worked on Radiation Design for RTBT to Target Service Bay shielding
- Looked at the data from the Beam Fault Radiation studies beam-pipe heating
- Assisted with reviewer comment resolution for the Neutron SAD review
- Continued work on equipment tracking
- Worked on the "Load Sheet" spreadsheet of circuit breaker panel assignments in the Klystron Gallery and Front End Building

Ion Source

- The wiring scheme for hooking up the 2 MHz RF amplifier to the European AC power has been worked out in collaboration with QEI, the manufacturer. An isolation transformer is being shipped to DESY to convert the 220 VAC Y to the required 220 VAC delta.

Survey and Alignment

RING

Set RID rails. (1 crew, 3 days).

Re-align scraper ("chainsaw") C-clamps had been installed after we aligned it in June.

Align BIG between collimators #1 and #2.

Align QMM? downstream of collimator #3.

RTBT

Set chamber on rad-hard test stand in the Target (1 crew, 2 days).

Network

Ring network observations continuing.

Ring network leveling completed.

RTBT network leveling completed.

HEBT network leveling underway

Mechanical

Ring Installation

- The HEBT LDRD Laser Optics Table was set in position.
- The Ring Injection straight section beamline vacuum components' installation continued.

- The Ring Injection straight section chicane magnets cooling lines installation was completed.
- The Ring Injection Dump magnet assembly was set up and tested.
- The Ring Injection Dump window support rail assembly was aligned and welded in position.
- The Ring Primary Collimator Scraper Assy was realigned and vacuum leak testing continued.
- The Ring Collimator #2 Top Shielding was painted and staged for installation.
- The RTBT beamline drift pipes DP14 and DP15 were installed.
- The RTBT EDUMP magnet QH01 vacuum chamber orientation was adjusted.
- The RTBT EDUMP window assembly installation was started.
- The RTBT Collimator #1 bottom shielding section was painted and installed.
- The RTBT Collimator #1 was reinstalled on its support.
- The RTBT Collimator #1 top shielding was painted and staged for installation.
- The RTBT quad magnets' utility installation continued.
- The Target quad magnets' tunnel buss bar brazing was completed.
- The Target quad magnets' Klixon installation was completed.
- The Target quad magnets' drift pipe assembly was set on the test stand and aligned.

Water Systems Installation

- The parts to fabricate all the Ring half-cell modified cooling manifolds' were placed on order.
- Installation of the PFN oil lines was completed in the Ring Service Building.
- The Ring Magnets' cooling skid pump experienced a premature bearing failure and was removed from service then sent out for repair.
- The Ring Injection Dump magnet QH01 cooling lines installation were installed.
- The Ring Injection straight section chicane magnets cooling lines installation was completed.
- Installation of water connections to RTBT 21Q40 magnets continued.
- Installation of water connections to RTBT EDUMP 30Q44 magnets continued.
- Test and checkout of the RTBT service building PS cooling system continued.

Electrical

- Ring Injection Dump Quadrupole magnet power supply has been operated and commissioned along with its associated magnet. This includes integration with the EPICS control system and calibrations. This completes testing of 29 of 54 power supplies needed for the Ring ARR. 35 additional Ring corrector power supplies have been operated and commissioned along with their associated magnets. This includes integration with the EPICS control system – testing is complete for 63 of the remaining 146 total correctors. Next week testing of the 6 remaining injection straight magnets will begin as well as initial check out and operation of the extraction kicker magnet systems.
- All RSB Diagnostics cabling needed for the ARR (with the exception of the Foil Video cables, which will be completed by 10/24/05) and all vacuum cabling is now complete. Terminations of BLM BNC cables in the RSB are complete and the associated HV cable terminations in the RSB will be completed by 10/25/05. Terminations are ongoing for diagnostics and vacuum in the Ring Tunnel.

RF

- Demonstrated improved technique for simulating beam loading in the lab. Will use this in conjunction with LTI system theory to develop improved beam loading compensation in time for Linac run in December.
- Agreed to move LLRF lab to former ion source lab in CLO. Floor plan and facility requirements completed. Met with Tom McLaughlin to arrange for facility upgrades (AC power, network, RTDL/Event Link, and compressed air).
- Preparing for testing of cryomodels 23.
- Procuring parts for build of HPM and FCM spares.
- Prepared for ASAC.

Ring RF

- Operated Station RF21, configured for 1 MHz operation, from the Low Level RF System. Ran 10 kV of RF with a programmed amplitude waveform that included an intermediate level of 5 kV and extended for 3 milliseconds. 10 kV is the maximum design level. 7 kV is the nominal operating level. Also controlled cavity tuning from the Low Level RF System.
- Station RF12 is nearing operational status. All interlocks are operational. Have run all power supplies at their nominal operating levels. Will run RF early next week.

Cryo Systems

- Successful cool down of CM23 which is the most outstanding cryomodule repair so far by SNS,

Beam Diagnostics

BPM:

- Parts for the 26 cm electrode fix have been ordered and we are awaiting shipment for installation. Prototypes of the 21 and 30 cm electrodes were ordered and we are awaiting shipment for testing. The shipment is 1 week late.
- Software has demonstrated that the data can be sorted on a turn-by-turn basis when the ring frequency and starting point is selected
- Awaiting installation of cable for putting the entire SNS-ASD RF/Diagnostics/Controls to a common reference clock.

Wire Scanners:

BLMs:

Foil Video systems:

BCM:

Controls